查询AIC1723-33CET供应商

500mA Low Dropout Linear Regulator

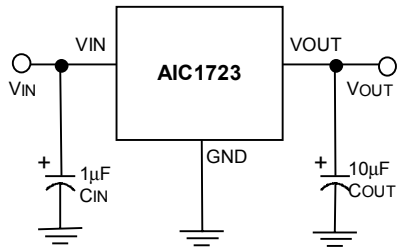
FEATURES

- Low Dropout Voltage of 750mV at 500mA Output Current (5.0V Output Version).
- Guaranteed 500mA Output Current.
- Internal 1.5Ω P-MOSFET Draws no Base Current.
- Low Ground Current at 65μA.
- 2% Accuracy Output Voltage of 3.3V/ 3.5V/ 3.7V/ 3.8V/ 5.0V/ 5.2V.
- Input Voltage Range up to 12V (5.0V Output Version).
- Needs only 4.7μF for Stability.
- Current and Thermal Limiting.

APPLICATIONS

- Voltage Regulator for CD-ROM Drivers.
- Voltage Regulator for LAN Cards.
- Voltage Regulator for Monitor Microprocessor.
- Voltage Regulator for RAM Module.
- Wireless Communication Systems.
- Battery Powered Systems.

TYPICAL APPLICATION CIRCUIT



Low Dropout Linear Regulator

DESCRIPTION

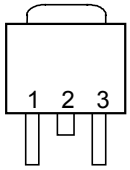
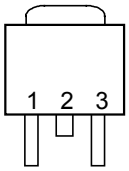
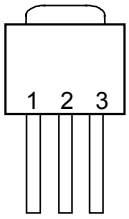
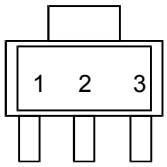
The AIC1723 is a 3-pin low dropout linear regulator. The superior characteristics of the AIC1723 include zero base current loss, very low dropout voltage, and 2% accuracy output voltage. Typical ground current remains approximately
65μA, from no load to maximum loading conditions. Dropout voltage at 500mA output current is exceptionally low: 750mV for the AIC1723-50 and AIC1723-52, 900mV for the AIC1723-38, AIC1723-37, AIC1723-35, and the AIC1723-33. Output current limiting and thermal limiting are built in to provide maximal protection to the AIC1723 against fault conditions.

The AIC1723 comes in the popular SOT-223, TO-251 and TO-252 packages.

ORDERING INFORMATION

AIC1723-XXXX

- PACKAGING TYPE
  - E: TO-252
  - F: TO-251
  - Y: SOT-223
  - ET: TO-252
- TEMPERATURE RANGE
  - C: 0°C~+70°C
- OUTPUT VOLTAGE
  - 33: 3.3V
  - 35: 3.5V
  - 37: 3.7V
  - 38: 3.8V
  - 50: 5.0V

ORDER NUMBER	PIN CONFIGURATION
AIC1723-33CE AIC1723-35CE AIC1723-37CE AIC1723-38CE AIC1723-50CE AIC1723-52CE (TO-252)	FRONT VIEW 1: VOUT 2: GND 3: VIN 
AIC1723-33CET AIC1723-35CET AIC1723-37CET AIC1723-38CET AIC1723-50CET AIC1723-52CET (TO-252)	FRONT VIEW 1: VIN 2: GND 3: VOUT 
AIC1723-33CF AIC1723-35CF AIC1723-37CF AIC1723-38CF AIC1723-50CF AIC1723-52CF (TO-251)	FRONT VIEW 1: VOUT 2: GND 3: VIN 
AIC1723-33CY AIC1723-35CY AIC1723-37CY AIC1723-38CY AIC1723-50CY AIC1723-52CY (SOT-223)	FRONT VIEW 1: VOUT 2: GND 3: VIN 

ABSOLUTE MAXIMUM RATINGS

Input Supply Voltage ..... -0.3~12V

Operating Junction Temperature Range ..... -40°C~ 125°C

Storage Temperature Range ..... -65°C~150°C

Power Dissipation..... 0.85W

Thermal Resistance θ_{JC} TO-251, TO-252 Package..... 12.5°C/W

SOT-223 Package .....15°C/W

TEST CIRCUIT

Refer to the TYPICAL APPLICATION CIRCUIT

■ ELECTRICAL CHARACTERISTICS (Ta=25°C, C_{IN}=1μF, C_{OUT}=10μF, unless otherwise specified.)

PARAMETER	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
Output Voltage	No Load					V
	AIC1723-52	V_{IN}=5.5~12V	5.100	5.2	5.300	
	AIC1723-50	V_{IN}=5.5~12V	4.900	5.0	5.100	
	AIC1723-38	V_{IN}=4.7~12V	3.725	3.8	3.875	
	AIC1723-37	V_{IN}=4.7~12V	3.625	3.7	3.775	
	AIC1723-35	V_{IN}=4.7~12V	3.430	3.5	3.570	
	AIC1723-33	V_{IN}=3.6~12V	3.234	3.3	3.366	
Output Voltage Temperature Coefficiency	(Note 1)			50		PPM/°C
Line Regulation	I_L=1mA					mV
	AIC1723-52	V_{IN}=5.5~12V		3	10	
	AIC1723-50	V_{IN}=5.5~12V		3	10	
	AIC1723-38	V_{IN}=4.7~12V		3	10	
	AIC1723-37	V_{IN}=4.7~12V		3	10	
	AIC1723-35	V_{IN}=4.7~12V		3	10	
	AIC1723-33	V_{IN}=4.7~12V		3	10	
Load Regulation (Note 2)	AIC1723-52	V_{IN}=7V, I_L=0.1~500mA		20	50	mV
	AIC1723-50	V_{IN}=7V, I_L=0.1~500mA		20	50	
	AIC1723-38	V_{IN}=5V, I_L=0.1~500mA		20	50	
	AIC1723-37	V_{IN}=5V, I_L=0.1~500mA		20	50	
	AIC1723-35	V_{IN}=5V, I_L=0.1~500mA		20	50	
	AIC1723-33	V_{IN}=5V, I_L=0.1~500mA		20	50	
Current Limit (Note 3)	AIC1723-52	V_{IN}=7V, V_{OUT}=0V		650		mA
	AIC1723-50	V_{IN}=7V, V_{OUT}=0V		650		
	AIC1723-38	V_{IN}=5V, V_{OUT}=0V		650		
	AIC1723-37	V_{IN}=5V, V_{OUT}=0V		650		
	AIC1723-35	V_{IN}=5V, V_{OUT}=0V		650		
	AIC1723-33	V_{IN}=5V, V_{OUT}=0V		650		

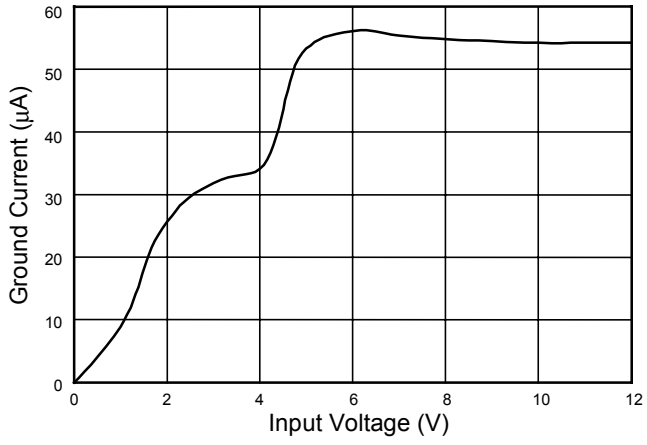
ELECTRICAL CHARACTERISTICS (Continued)

PARAMETER	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
Dropout Voltage (Note 4)	AIC1723s	I_L=0.1mA		0.2	10	mV
	AIC1723-52	I_L=500mA		750	850	
	AIC1723-50	I_L=500mA		750	850	
	AIC1723-38	I_L=500mA		900	1050	
	AIC1723-37	I_L=500mA		900	1050	
	AIC1723-35	I_L=500mA		900	1050	
	AIC1723-33	I_L=500mA		900	1050	
Ground Current	I_O=0.1mA~I_{MAX}					µA
	AIC1723-52	V_{IN}=5.5~12V		65	90	
	AIC1723-50	V_{IN}=5.5~12V		65	90	
	AIC1723-38	V_{IN}=4.7~12V		65	90	
	AIC1723-37	V_{IN}=4.7~12V		65	90	
	AIC1723-35	V_{IN}=4.7~12V		65	90	
	AIC1723-33	V_{IN}=4~12V		65	90	

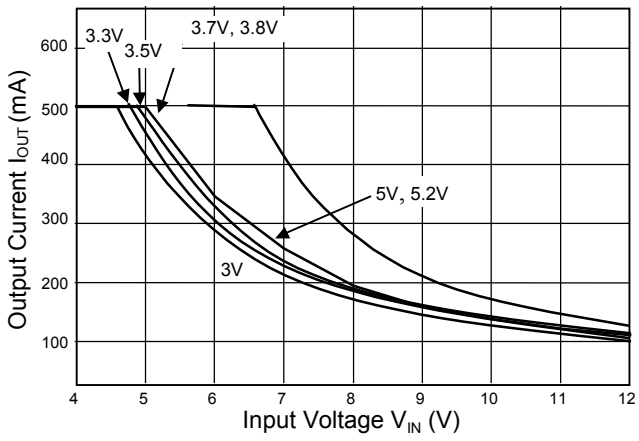
Note 1: Guaranteed by design.
Note 2: Regulation is measured at constant junction temperature, using pulse testing with a low ON time.
Note 3: Current limit is measured by pulsing a short time.
Note 4: Dropout voltage is defined as the input to output differential at which the output voltage drops 100mV below the value measured with a 1V differential.

TYPICAL PERFORMANCE CHARACTERISTICS

Ground Current vs. Input Voltage

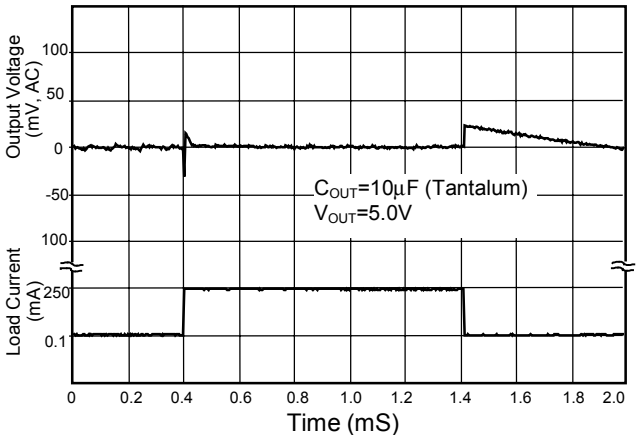


Recommended Max. Output Current v.s. Input Voltage

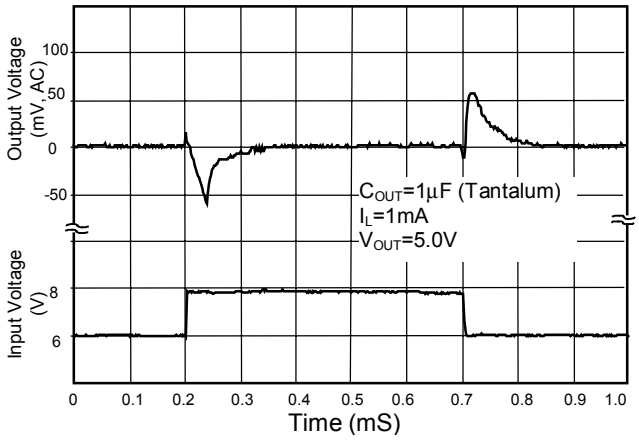


TYPICAL PERFORMANCE CHARACTERISTICS (Continued)

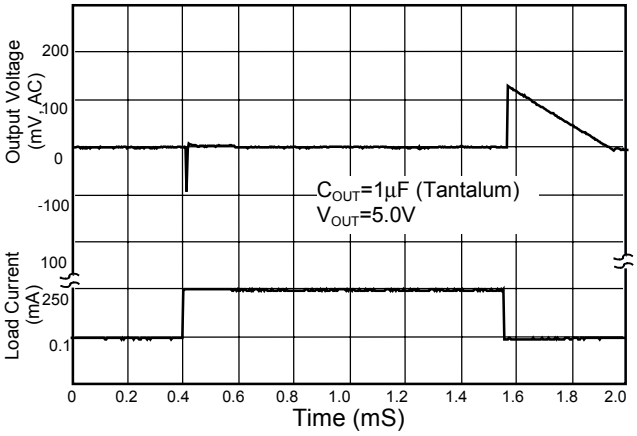
Load Transient Response



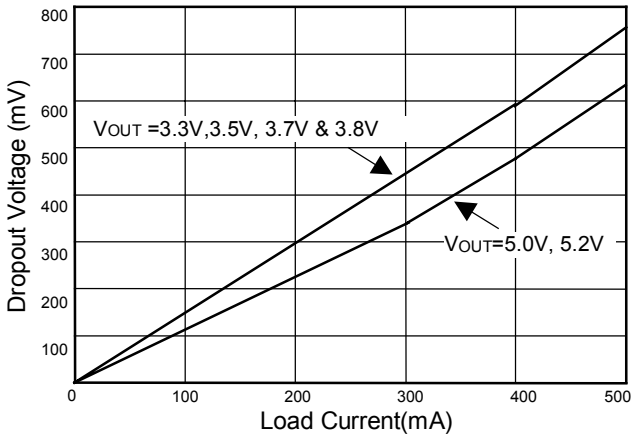
Line Regulation Response



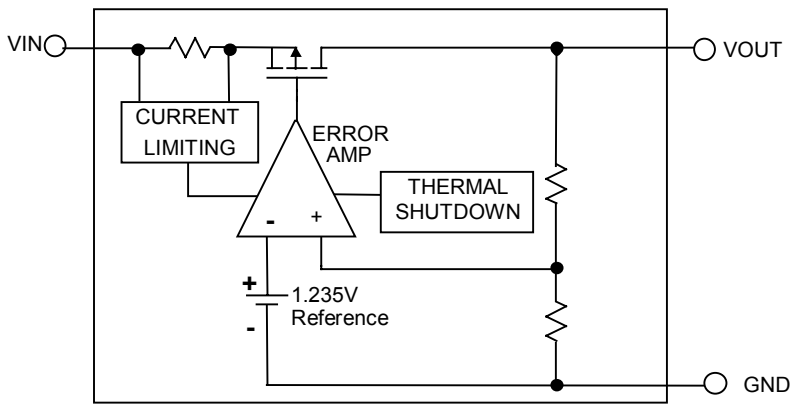
Load Transient Response



Dropout Voltage vs Load Current



BLOCK DIAGRAM



PIN DESCRIPTION

VOUT PIN - Output pin.
GND PIN - Power GND.
VIN PIN - Power Supply Input.

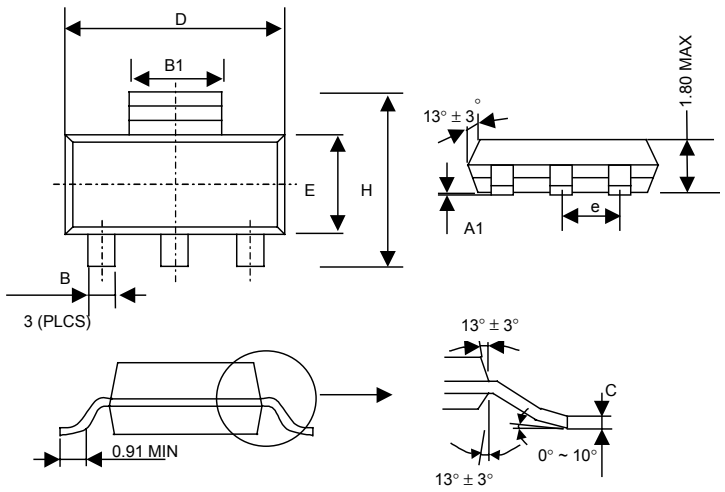
APPLICATION INFORMATIONS

A 4.7μF (or greater) capacitor is required between the AIC1723 output and ground for stability. Without this capacitor the part will oscillate. Even though most types of capacitor may work, the equivalent series resistance (ESR) should be held to 5Ω or less if Aluminum electrolytic type is used. Many Aluminum electrolytics have electrolytes that freeze at about -30°C, so solid tantalums are recommended for operation below -25°C. The value of this capacitor may be increased without limit.

A 0.1μF capacitor (or greater) should be placed from the AIC1723 input to ground if the lead inductance between the input and power source exceeds 500nH (approximately 10 inches of trace).

PHYSICAL DIMENSIONS

- **SOT-223 (unit: mm)**

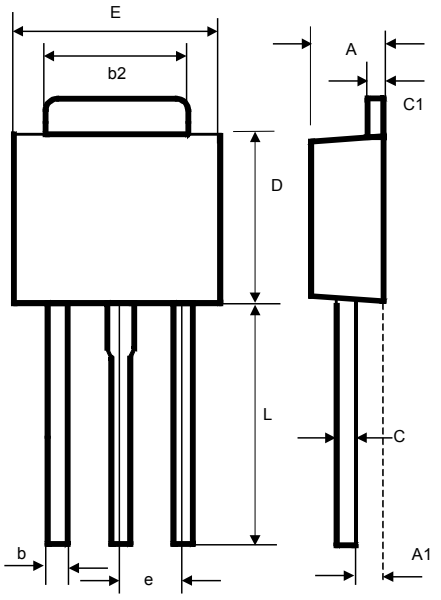


SYMBOL	MIN	MAX
A1	0.02	0.12
B	0.60	0.80
B1	2.90	3.15
C	0.24	0.35
D	6.30	6.80
E	3.30	3.70
e	2.30 (TYP.)	
H	6.70	7.30

- **SOT-223 MARKING**

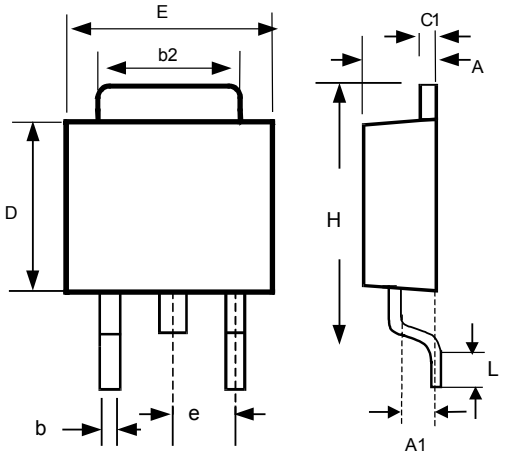
Part No.	Marking	Part No.	Marking
AIC1723-33	AJ33	AIC1723-38	AJ38
AIC1723-35	AJ35	AIC1723-50	AJ50
AIC1723-37	AJ37	AIC1723-52	AJ52

- **TO-251 (unit: mm)**



SYMBOL	MIN	MAX
A	2.19	2.38
A1	1.02	1.27
b	0.55	0.89
b2	5.21	5.46
C	0.46	0.58
C1	0.46	0.58
D	5.33	5.59
E	6.35	6.73
e	2.28 (TYP.)	
L	7.62 (TYP.)	

- **TO-252 (unit: mm)**



SYMBOL	MIN	MAX
A	2.19	2.38
A1	1.02	1.27
b	0.64	0.88
b2	5.21	5.46
C1	0.46	0.58
D	5.33	5.59
E	6.35	6.73
e	2.28 (TYP.)	
H	9.40	10.42
L	0.51	-